Health Information Technology Adoption in Physician Offices

A Summary of Survey Findings in Iowa
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EXECUTIVE SUMMARY

The adoption of health information technology, particularly electronic health records, has the potential to transform the quality and efficiency of the health care system. Assessing progress toward EHR adoption, both nationally and locally, is challenging. The Iowa HIT Initiative is a statewide effort to advance the use of HIT to improve the quality, safety and value of health care in Iowa. The Initiative designed a survey specifically dedicated to tracking HIT adoption in Iowa physician offices, with emphasis on EHR rates. A baseline survey was distributed in 2005; subsequent survey distribution occurred in 2007.

The 2007 data collection process consisted of two phases: (I) *Clinic System Health Information Technology Survey*; and (II) *Physician Office Health Information Technology Survey*. The purpose of the surveys was to assess the status of EHR adoption among physician offices, with the *System Survey* capturing data from a more global perspective. Online electronic tools were developed for both surveys. An invitation to participate in the *Office Survey* was distributed to 1347 physician offices; 24 large clinic networks/health systems received an invitation to participate in the *System Survey*.

Key Findings

<u>Phase I: System Survey</u>

- A 95.8% response rate was achieved.
    - A total of 466 practice sites and 2604 providers were affiliated with the 23 clinic systems/networks responding to the survey.
- Two systems/networks had EHR implementation complete at all affiliated sites.
- Seven systems/networks did not yet have vendor contracts.
- Only 18.2% (n=85) of affiliated practice sites had EHR implementation complete.
    - An additional 174 affiliated practice sites were projected to have EHR implementation complete by the end of 2008.

<u>Phase II: Office Survey</u>

- A 22.0% response rate was achieved.
    - The responding physician offices were composed of 37.2% primary care and 62.8% specialty care sites.
    - The majority of respondents were from small practices (76.4%), followed by 12.2% medium and 11.5% large practices.

EHR Users

- In 2007, 25% of physician offices reported EHR adoption vs. 18.3% in 2005; a statistically significant increase in adoption rate ($p<0.01$).
    - 83.8% of EHR users beyond purchase, installation and training stages
    - 63.5% of EHR users have system implemented >1 year
    - 45.9% of EHR systems certified by CCHIT; 47.3% certification unknown
- A physician champion was involved with EHR selection at 79.7% of physician offices; other clinical staff was involved at 37.8% of offices.
- An unknown or no financial ROI was reported by 71.6% of EHR users.

Non-EHR Users

- In 2007, 75% of physician offices did not have an EHR system.
- Implementation projected within 2 years for 51.8% of non-EHR users vs. 36.2% in 2005; a statistically significant increase in adoption timeline ($p<0.001$).
    - 18.5% expressed no interest in adoption in 2007 vs. 27.8% in 2005
- Financial constraints were ranked as the top barrier to EHR implementation in 2007 and 2005, followed by commitments associated with implementation (e.g., time, training, office disruption).

The 2007 Iowa HIT Initiative survey results show an increase in EHR adoption among Iowa physician offices since 2005. The statewide rate of 25.0% is in alignment with the national adoption rate for physicians in ambulatory settings, estimated at 24.0%. Although progress is being made, relatively slow adoption rates in Iowa and across the nation will likely challenge the President's goal of ensuring EHRs are available to most Americans by 2014.

Policymakers' interest in accelerating the diffusion of EHRs continues. Given that EHR adoption is an integral component of quality measurement, performance-related payments and population health assessments, understanding the future adoption curve for HIT cannot be optional; it must be viewed as essential for guiding policies and addressing barriers.

A high quality, uniform survey protocol is essential for gauging EHR adoption status. Overcoming survey limitations and considering recommendations related to assessing HIT in physician offices are necessary steps to enhancing survey sophistication. Reliable survey data are not only fundamental to evaluating progress toward EHR adoption, they are key to determining which state and federal initiatives effectively impact widespread EHR adoption across Iowa and the nation.

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INTRODUCTION

Background

Health information technology is the use of electronic methods to manage health and medical information. Perhaps the most important HIT is the electronic health record. EHRs electronically store and organize individual health information. Furthermore, EHRs facilitate communication between clinicians about patient issues, support improved clinical decision-making and assist health care organizations with the management of patient groups.[1]

The adoption of HIT, particularly EHRs, can transform the health care system by lowering costs, reducing medical errors and improving quality and efficiency of care.[2] President Bush has called for most Americans to have access to an interoperable EHR by 2014.[3]

While EHRs are promising tools to improve quality and efficiency in health care, data on their adoption rate are limited.[4] No single approach for measuring EHR adoption exists. Studies have attempted to measure EHR and HIT adoption rates; however, diverse methodologies make a true measurement rate difficult to establish.[5] A report, "Health Information Technology in the United States: The Information Base for Progress," recently estimated 17 to 24% of physicians are using EHRs in ambulatory settings to some extent. This estimate was based on data synthesized from published and unpublished surveys regarding EHR adoption and use as of 2005.[6,7]

Not only is it challenging to obtain a national rate for EHR adoption, rates at the state level are not widely available either. To our knowledge, the Iowa HIT Initiative survey described in this report is the only survey specifically dedicated to tracking adoption rates in Iowa physician offices.

Iowa HIT Initiative

The Iowa HIT Initiative, established in 2004, is a statewide effort to advance the use of HIT to improve the quality, safety and value of health care in Iowa. This collaborative partnership, led by the Iowa Foundation for Medical Care and the Iowa Medical Society, includes representatives from more than 30 Iowa health care organizations. One of the Initiative's activities includes distribution of a *Physician Office Health Information Technology Survey*. The survey was first distributed during the summer of 2005; the findings established a baseline for Iowa physician office HIT adoption.[8]

Purpose

The *Physician Office Health Information Technology Survey* was distributed again during the winter of 2007. The purpose of the data collection was to assess the current state of physician office HIT adoption—with emphasis on EHR rates—and note comparisons with the 2005 baseline survey.

A new component to the 2007 survey process, the *Clinic System Health Information Technology Survey*, was also implemented during the winter of 2007. The intent of this survey was to capture the current state of EHR adoption among physician offices in Iowa from a more global perspective: the health system level.

In combination, the survey data serve as a valuable resource for the Iowa HIT Initiative's strategic planning and alignment of local and national initiatives.

METHODS

Survey Design

Physician Office Health Information Technology Survey
The 2007 *Physician Office Health Information Technology Survey* content was enhanced slightly from the 2005 survey, taking caution to ensure consistency was maintained while incorporating new, value-added questions. The *Office Survey* questions were subject to alpha testing and beta testing in two physician offices.

An online electronic survey tool was developed to maximize timeliness and efficiency of data collection (Appendix A). A paper copy of the *Office Survey* was available for respondents who preferred to complete a paper tool or did not have Internet access (Appendix B).

Clinic System Health Information Technology Survey
Iowa HIT Initiative Steering Committee members developed the new *Clinic System Health Information Technology Survey*. Due to the brevity of the *System Survey* content, questions were subject to alpha testing only. No paper tool was available because it was anticipated the respondents would prefer and have access to the online electronic survey tool (Appendix C).

Study Population

Office Survey
The *Office Survey* is a practice-level survey; therefore, the physician office was the unit of analysis. A database, maintained and updated annually by the state medical society, was used for the sampling frame. All physician offices meeting the established eligibility criteria were retained for the sampling frame. That is, the sampling frame was composed of all practice sites providing non-emergent, outpatient clinical care and for which sufficient contact information was available for survey distribution. Ancillary care sites were only excluded when located at a hospital address. While the database was not all-inclusive of the target population (i.e., physician offices in Iowa), a census or 100% of sites in the sampling frame received the survey (n=1347).

E-mail vs. Postal Mail Groups
The name and e-mail address for a primary contact person were available for slightly more than half of physician offices in the sampling frame. These targeted respondents were sent personalized e-mails regarding the survey. The remaining offices received paper correspondence regarding the survey, sent to the attention of Clinic Manager. The recipient had the option to forward the survey to another professional or confer with colleagues to ensure accurate responses.

System Survey
The *System Survey* is a system-level survey; therefore, the clinic system/network was the unit of analysis. Using a database from the state medical society for the sampling frame, a census of large clinic networks and health systems in Iowa (n=24) was identified to receive the survey. The sampling frame eligibility criteria included clinic systems/networks with more than 20 non-hospital based physicians practicing at one or more affiliated sites. Professionals (e.g., health care executives, managers, health information technology coordinators) affiliated with the systems/networks and with whom the state medical society had established relationships were the targeted survey respondents. Each of these potential respondents received electronic correspondence regarding the survey. The recipient had the option to forward the survey to another professional or confer with colleagues to ensure accurate responses.

Data Collection

Survey distribution and data collection occurred in chronological, overlapping phases. Phase I focused on the *System Survey*; the focus of Phase II was the *Office Survey*.

Phase I: Clinic System Data Collection

In early January 2007, potential survey respondents from 24 clinic systems/networks were invited to participate in one of two conference calls, co-facilitated by representatives of the two organizations spearheading the Iowa HIT Initiative effort. Of the invited systems/networks, 54.2% (n=13) participated.

The purpose of the conference call was to inform clinic systems/networks of the 2007 survey process (i.e., Phases I & II) and enlist their support. Participants were invited to complete the *System Survey* and asked to encourage completion of the *Office Survey* by their affiliated sites. It was also communicated survey respondents would receive the final summary of aggregated findings for both surveys; no other incentives were offered. The same information was shared with non-participants of either call (45.8%; n=11) through electronic correspondence.

All targeted system/network respondents (i.e., regardless of call participation) were ultimately sent an e-mail message with a link to the online survey tool. A series of reminder e-mails were sent and/or telephone calls made to maximize response to the survey. The duration of clinic system data collection was eight weeks.

Phase II: Physician Office Data Collection

At the end of January 2007, Phase II was initiated. A total of 1347 physician offices in Iowa received an invitation to participate in the *Office Survey* by either e-mail (56.6%; n=762) or postal mail (43.4%; n=585). The initial correspondence included: (1) purpose of the survey; (2) voluntary and confidential nature of the survey; (3) estimated survey completion time (i.e., 15 minutes); (4) process for completing the survey, including assigned survey identification number; (5) link to the online survey; and (6) option to request a paper copy of the survey. It was also communicated survey respondents would receive the final summary of aggregated findings; no other incentives were offered. The Iowa HIT Initiative leadership signed the survey correspondence, and it was sent from either a specially created Iowa HIT Initiative electronic mailbox or by postal mail using Iowa HIT Initiative letterhead.

A program was created to track surveys submitted by assigned identification number; this allowed for exclusive follow-up with non-respondents. Three follow-up messages were sent to the e-mail group, and one follow-up message was sent to the postal mail group prior to the original data collection deadline. As a result of undeliverable correspondence, the configuration of the two groups (i.e., e-mail and postal) changed throughout the data collection process.

The survey deadline was extended with two additional messages sent to the e-mail group only. Limited resources combined with a low response rate from the postal mail group prohibited additional follow-up with those non-respondents. Adjunct marketing opportunities (e.g., personal e-mails or telephone calls) were also utilized, targeting subsets of the original census of physician offices. The duration of physician office data collection was eight weeks.

Analysis

An online survey provider served as the repository for the quantitative data collected during the 2007 survey process. All quantitative data were reviewed for completeness prior to analysis; targeted follow-up was conducted with physician offices if clarification of data was necessary. In addition, technical assistance inquiries were manually tracked by the Iowa HIT Initiative survey administrators to capture qualitative, process-oriented data.

Phase I: System Survey

The *System Survey* data were analyzed using manual calculations. Correlation of quantitative data from the *System Survey* with that from the *Office Survey* was not performed because: (1) data correlation was not the primary purpose of these surveys; and (2) the databases used to identify the census samples for the two surveys did not facilitate linkage of clinic systems/networks with affiliated physician offices nor was this information requested as part of the data collection process.

Phase II: Office Survey

The *Office Survey* data were analyzed using SAS code to read the data, calculate rates/averages and produce reports. In addition to calculations to analyze data for respondents overall, select data were stratified by the variables of practice type (i.e., primary care vs. specialty care) and practice size (i.e., number of physicians).

Power calculations were performed on the sampling frame and resulting sample size. Power calculations could not be performed within the stratifications (i.e., practice type and practice size) because of the self-reported nature of the data. Chi-Square statistics were used to identify statistically significant differences within the 2007 survey data and between the 2005 and 2007 survey data at a significance level of $p<0.05$.

When applicable and feasible, notable comparisons between the 2005 and 2007 *Office Survey* findings were highlighted. A detailed comparison of 2005 and 2007 data was beyond the scope of this survey analysis; complete 2005 survey findings are available in a separate report.[8]

RESULTS

Phase I: System Survey

The *System Survey* response rate was 95.8% (n=23). Power calculations verified the number of responses were sufficient to be representative of the sampling frame, with a confidence level of 95% and within a margin of error of 5%.

System/Network Profile

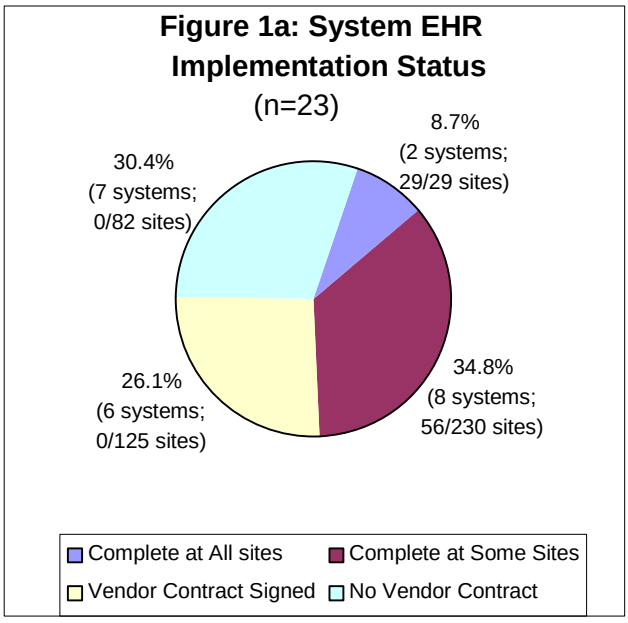
The number of practice sites affiliated with the responding clinic systems/networks (i.e., sites where the clinic system oversees the management of day-to-day operations) totaled 466, ranging from one to 72 sites per system. Of the 466 practices sites, 88.6% (n=413) were located in Iowa; 11.4% (n=53) of sites, across six systems, were located outside of the state.

The number of providers (i.e., physicians, physician assistants, nurse practitioners) affiliated with the responding clinic systems/networks totaled 2604, ranging from 26 to 691 providers per system. Of the total providers, 95.2% (n=2479) were affiliated with the practice sites located in Iowa.

HIT Among Systems/Networks

Figures 1a and 1b display EHR implementation status among clinic systems/networks in Iowa and the respective number of affiliated practice sites where implementation is complete. Only two systems/networks reported having EHR implementation complete at all affiliated practice sites. Of the total sites affiliated with the 23 responding systems/networks, EHR implementation was complete at only 18.2% (n=85).

Figure 1c displays the implementation timeline for affiliated sites where EHR implementation is not complete (n=381). Almost half (n=174) of these sites are projected to have EHR implementation completed by the end of 2008. Two systems, both currently without a vendor contract, reported no plan for EHR implementation at the time of the survey.



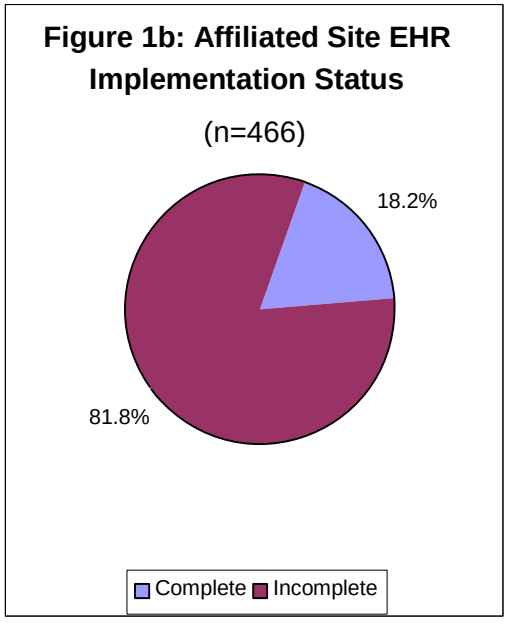
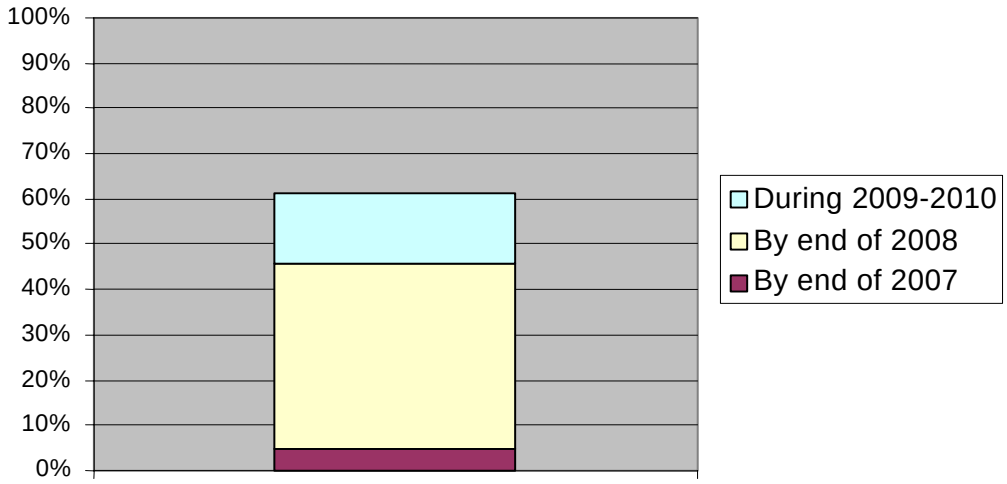


Figure 1c: Projected EHR Implementation Timeline for Affiliated Sites
(n=381)



Note: 38.6% of sites affiliated with systems that reported: (1) no plan for EHR implementation; (2) unknown timeline; or (3) did not answer survey question.

The EHR vendors utilized, as reported by the clinic system/network respondents, included: Allscripts/A4 (n=5); NextGen Healthcare Information Systems (n=3); Cerner Corporation (n=2); Epic Systems (n=2); McKesson (n=2); Misys Healthcare Systems (n=1); and Sage Software (n=1).

Phase II: Office Survey

The *Office Survey* response rate was 22.0% (n=296). Power calculations verified the number of responses were sufficient to be representative of the sampling frame, with a confidence level of 95% and margin of error of 5%. In contrast, the number of responses within the stratifications (i.e., practice type and practice size) was not sufficient to be representative with a reasonable degree of confidence.

Nearly all surveys (99.0%; n=293) were submitted online; only 1.0% (n=3) of respondents submitted paper surveys. Of the respondents, 76.7% (n=227) were in the final e-mail group while 23.3% (n=69) were in the final postal mail group. Less than one quarter of survey respondents consulted with colleagues to facilitate completion of the survey.

Practice Profile

Figure 2 displays the survey response rate by practice type. Of the total respondents, 37.2% (n=110) exclusively represented primary care practice sites while 62.8% (n=186) represented sites with other specialties or subspecialties. For the purpose of this analysis, specialty care sites may or may not have primary care at the same location.

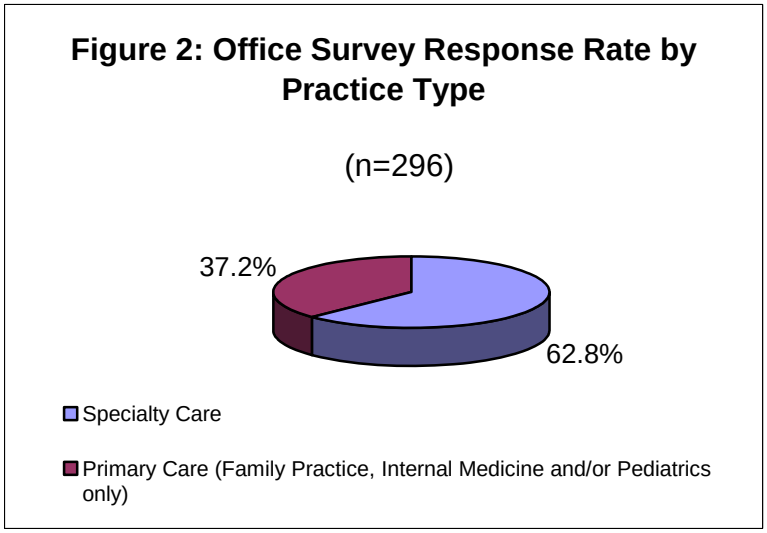
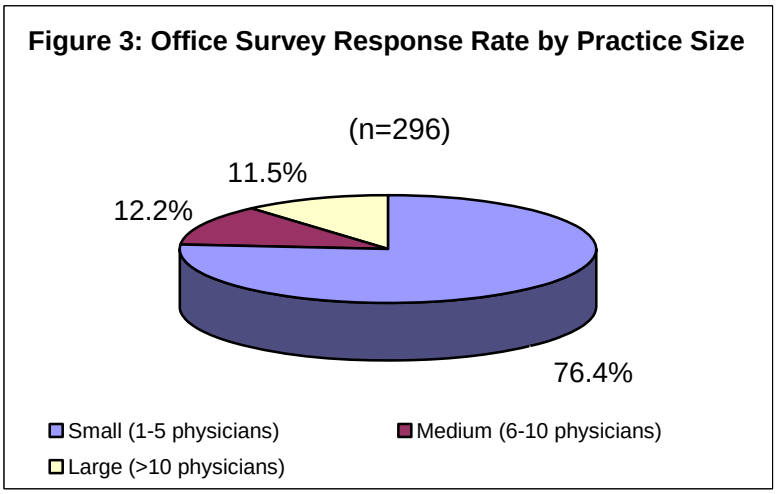


Figure 3 displays the survey response rate by practice size. The majority (n=226) of survey responses were submitted by small practice sites with five or fewer physicians. The small sites were composed of 41.2% (n=93) primary care and 58.8% (n=133) specialty care. Among medium (n=36) and large (n=34) sites combined, specialty care sites (75.7%; n=53) were most often represented.



The most frequent, problematic workflow issues included: (1) medical records unavailable when needed (38.2%; n=113); (2) test results tracking and follow-up (32.4%; n=96); and (3) patient no shows (32.4%; n=96). Only 5.7% (n=17) of all practice sites participated in pay-for performance or other reimbursement programs *and* reported a financial incentive for implementing/using HIT.

Only 30.4% (n=90) of practice sites created reports or used a registry/patient tracking system to manage care (e.g., monitor status of patient populations, document individual patient status and/or identify follow-up opportunities). The most frequent means of tracking patient care needs (e.g., anticoagulation therapy, hemoglobin A1c, immunizations, preventive care), regardless of practice size, was paper flow sheets in the medical chart.

Excluding 82 practice sites where reported not applicable, 20.6% (n=44/214) of physician offices used: (1) electronic registries (n=14); (2) EHRs (n=23); or (3) both (n=7) to track preventive care. In addition, a surprising 18.2% (n=39/214) reported not tracking preventive care services in any capacity; the types of physician offices not tracking preventive care were equally distributed between primary care and specialty sites.

HIT in Physician Offices

Survey respondents generally reported interest in implementing HIT in the future, with the greatest being EHR and prescribing systems.

Table 1 shows the current penetration of various electronic technologies in physician offices, overall and by practice size. The most prevalent were related to practice management (i.e., billing and scheduling). EHR systems were reported present in 25.0% of responding physician offices. Large offices were significantly more likely to have an EHR in place than medium and small offices combined ($p<0.05$).

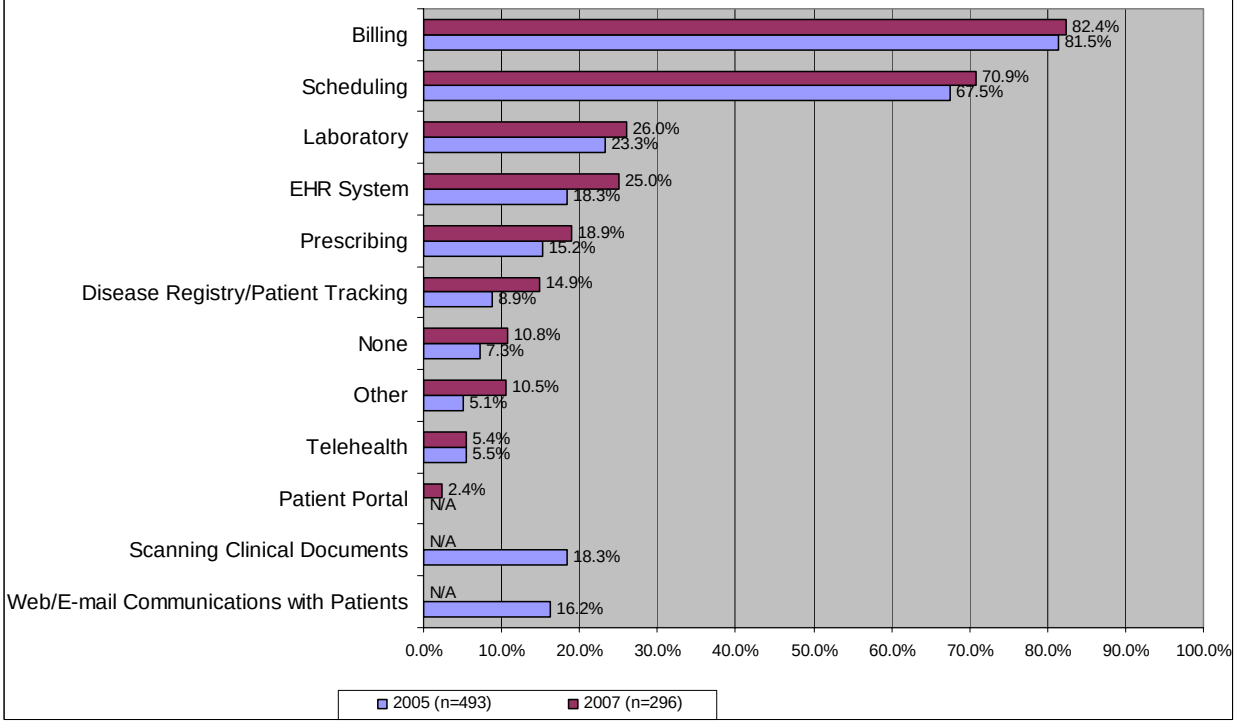
Table 1: Rate of HIT in Physician Offices

Electronic systems/ functions already in place at practice[1]	Practice Size			All Offices
	Large (n=34)	Medium (n=36)	Small (n=226)	(n=296)
Billing	85.3	86.1	81.4	82.4 (n=244)
Scheduling	76.5	88.9	67.3	70.9 (n=210)
Laboratory	35.3	27.8	24.3	26.0 (n= 77)
EHR System[2]	41.2	25.0	22.6	25.0 (n= 74)
Prescribing[3]	29.4	22.2	16.8	18.9 (n= 56)
Disease Registry/ Patient Tracking[4]	17.6	25.0	12.8	14.9 (n= 44)
None	14.7	2.8	11.5	10.8 (n= 32)
Other	8.8	16.7	9.7	10.5 (n= 31)
Telehealth	8.8	0.0	5.8	5.4 (n= 16)
Patient Portal[5]	5.9	0.0	2.2	2.4 (n= 7)

[1]Electronic systems/functions not mutually exclusive; survey respondents directed to select all that apply.
[2]EHR system = The electronic system that has the ability to create and maintain problem, medication and allergy lists and that can be used to document patient encounters and write orders and prescriptions.
[3]Electronic prescribing system = Stand alone application or stand alone EHR module used to write and print, fax or electronically send prescriptions (excludes full EHR system).
[4]Electronic disease registries/patient tracking system = Stand alone application designed to track patients with specific conditions (excludes full EHR system).
[5]Patient portal = Patients have the ability to use a Web site to schedule appointments, request medication refills, review test results or portions of their chart and communicate with their provider.

Figure 4 compares the penetration of electronic health information technologies in 2007 with 2005.[8] There was a statistically significant increase for EHRs among all physician offices from 2005 to 2007 ($p<0.01$). Among small practice sites responding to the survey, there was a significant increase in EHRs from 2005 to 2007 ($p<0.05$). Disease registry/patient tracking was the only other electronic function that was significantly more prevalent in 2007 than 2005 ($p<0.05$). The 2007 prevalence rates for other technologies were maintained or increased.

Figure 4: 2005 vs. 2007 Rates of HIT in Physician Offices



EHR Users

Table 2 shows the stage of EHR adoption, as reported by survey respondents. Of the 74 physician offices with an existing EHR system, 63.5% were beyond the initial stages of adoption (i.e., EHR implemented and used for greater than one year). These offices represented only 15.9% of all survey respondents. Of the 62 offices reportedly beyond purchase, installation and training stages, 59.7% (n=37) included specialty care. There was no significant difference between the adoption stages reported among physician offices in 2005 and 2007.

Table 2: Stage of EHR Adoption (n=74)

Adoption Stage	%
Implemented and used > 1 year	63.5 (n=47)
Implemented and used < 1 year	20.3 (n=15)
Installation and training in progress	10.8 (n= 8)
Purchased, have not started to implement yet	4.1 (n= 3)
Did not answer survey question	1.4 (n= 1)

The type of staff involvement in EHR selection and purchase, shown in Table 3, generally spanned the health care spectrum. A physician champion was involved in the decision process at 79.7% of offices with an existing EHR system, yet involvement of other clinical staff was reported at only 37.8%. This level of involvement surpassed 2005 findings of 64.4% for physician champion and 23.3% for clinical staff.[8]

Table 3: Staff Involvement in EHR Selection/Decision to Purchase (n=74)

Staff[1]	%
Physician Champion	79.7 (n=59)
Office Manager	58.1 (n=43)
Administrative Staff	51.4 (n=38)
Health System Management	45.9 (n=34)
Clinical Staff	37.8 (n=28)
Other	10.8 (n= 8)

[1]Staff involvement not mutually exclusive; survey respondents directed to select all that apply.

The overall satisfaction with the EHR systems was high, with more than 90.0% of physician offices reporting a level of very satisfied or somewhat satisfied. Table 4 ranks specific EHR features according to respondents' reported benefit to the practice. Respondents ranked "improve access to medical record information" as the most beneficial EHR feature. Minimal variability in mean benefit ranking was noted regardless of practice size or specialty.

Table 4: Mean Benefit of EHR Features (n=74)

EHR Features	Mean[1]	Respondents[2]
Improve access to medical record information	4.61	71
Reduce clinical and medication errors	3.70	70
Improve workflow	3.63	70
Improve quality of patient care	3.51	70
Improve patient communications	3.47	70
Reduce transcription costs	3.27	70
Reduce administrative costs associated with practice	3.09	67
Improve clinical decision-making	3.07	68
Provide more services to patients per visit	2.83	70
Improve charge capture	2.82	67

[1]Scale was 5=Extremely beneficial; 4=Very beneficial; 3=Somewhat beneficial; 2=Marginal benefit; 1=No benefit
[2]Respondents ranking benefit were <100% of EHR users (n=74) because some partially answered or did not answer survey question.

Table 5 shows return on investment for practices with existing EHR systems, overall and by practice size. EHR satisfaction level did not appear to correlate with per provider purchase/implementation costs and was relatively high despite the frequently unknown or modest return on investment. The positive, realized ROI for all offices improved only slightly (i.e., 29.0%) when excluding EHR users in the earliest adoption stages of purchase, installation and training.

Table 5: Rate of ROI

Realized ROI	Practice Size			All Offices
	Large (n=14)	Medium (n=9)	Small (n=51)	(n=74)
No	28.6	22.2	41.2	36.5 (n=27)
Don't know	35.7	55.6	31.4	35.1 (n=26)
Yes	28.6	22.2	23.5	24.3 (n=18)
Breaking even	7.1	0.0	3.9	4.1 (n= 3)

The most common (i.e., reported by more than one survey respondent) EHR vendors used, included (in alphabetical order): (1) Allscripts/A4; (2) Amazing Charts; (3) Cerner Corporation; (4) eClinicalWorks; (5) GE Healthcare; (6) IMPAC Medical Systems, Inc.; (7) McKesson; (8) MediNotes Corporation; (9) Misys Healthcare Systems; (10) NextGen Healthcare Information Systems; (11) Practice Partner; and (12) Sage Software. While 45.9% (n=34) of respondents reported their EHR system was certified by the Certification Commission for Healthcare Information Technology, an almost equal number (47.3%; n=35) did not have knowledge of the certification status. CCHIT certifies ambulatory, electronic health record products that meet baseline criteria for functionality, security and interoperability.[3]

For the purpose of the survey, e-prescribing was defined as the ability to electronically send prescriptions directly to a pharmacy's electronic system (i.e., using an electronic prescribing service rather than traditional faxing or printing). Interestingly, 78.4% (n=58) of respondents with an EHR system reported e-prescribing capabilities yet more than half of those practices were not actually utilizing this feature with area pharmacies. Furthermore, half of the respondents reported no exchange of electronic patient information (e.g., lab/test results, discharge summaries, problem lists, medications, allergies, etc.) between the practice system and other EHR systems.

Non-EHR Users

Of the total survey respondents, 75.0% (n=222) considered their physician office to not be using an EHR system.

Table 6 shows non-users' perceived value of EHRs. The items of greatest perceived value were comparable to the system features with greatest, actual benefit as reported by respondents from physician offices already using EHRs. Efficiency, accessibility and quality of care were all key factors.

Table 6: Perceived Value of EHRs (n= 222)	
Value[1]	**%**
Office process efficiency	74.3 (n=165)
Access to current patient data/ability to complete records from remote location	69.4 (n=154)
Improved quality of care and patient safety	67.6 (n=150)
Accessibility of data regardless of setting or provider (interoperability)	66.7 (n=148)
Increased communication within the office	55.0 (n=122)
Disease management/Ability to monitor & improve patient/population clinical outcomes	55.0 (n=122)
Increased communication with the patient	40.1 (n= 89)
Cost reduction and/or increased revenue	36.5 (n= 81)
No perceived value/Benefits don't justify the costs	14.0 (n= 31)
Other	2.3 (n= 5)

[1]Values not mutually exclusive; survey respondents directed to select all that apply.

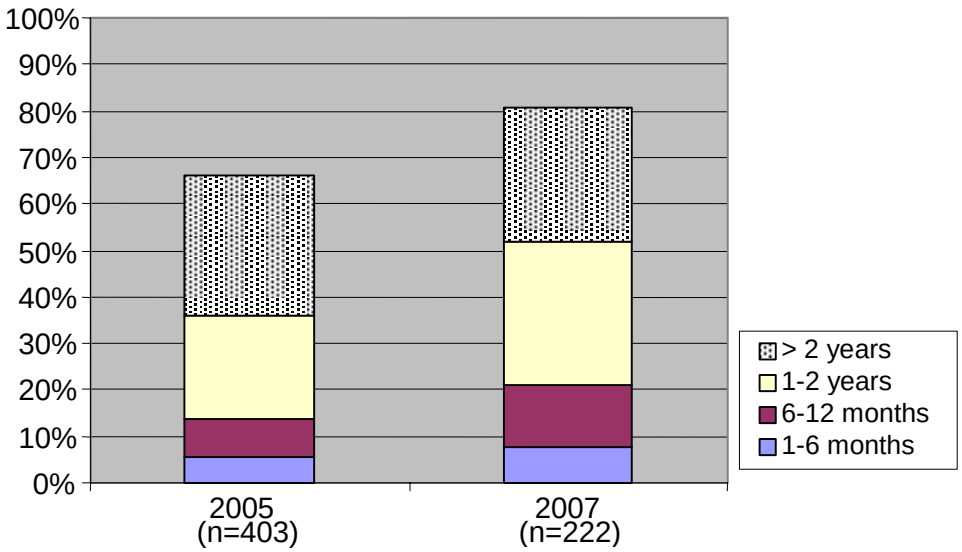
While there was perceived value to implementing EHRs, barriers were also identified. The barriers identified in 2007 were comparable to those from the 2005 survey findings.[8] As Table 7 shows, financial constraints were again rated the most significant barrier to EHR implementation. This was followed by barriers associated with the implementation process (e.g., time requirements, staff training, office disruption). The barrier rating for privacy and security was only marginal for survey respondents. Minimal variation in the 2007 barrier ranking was noted among non-EHR users, regardless of practice size or specialty.

Table 7: Mean Barrier Potential (n=222)		
Barrier	**Mean[1]**	**Respondents[2]**
Financial constraints	3.56	204
Time required to implement and train staff	3.22	206
Office disruption during implementation (e.g., fewer patients, lost revenue)	3.06	201
Initial data entry is too labor intensive	2.96	206
Software requires extensive customization to fit into practice	2.93	201
Difficult to select a system	2.71	199
Unable to secure all partners'/clinicians' commitment to use EHR	2.64	199
Vendor support is inadequate for technological needs of the practice	2.30	197
Vendor stability and viability	2.30	192
Confidentiality/privacy/security concerns	2.23	198
Lack of clinical data standards	2.17	194
Current practice management software vendor does not offer an EHR package	1.89	200

[1]Scale was 5=Extreme barrier; 4=Significant barrier; 3=Moderate barrier; 2=Marginal barrier; 1=No barrier
[2]Respondents ranking barriers were <100% of non-EHR users (n=222) because some partially answered or did not answer survey question.

Figure 5 compares and cumulates the reported rates of future EHR adoption among non-EHR users for 2005 and 2007. The projected timeline was within two years for 51.8% (n=115) of respondents in 2007 vs. 36.2% (n=146) in 2005, reflecting a significant increase ($p<0.001$). Although less than the 27.8% (n=112) reported in the 2005 survey, a surprising 18.5% (n=41) still expressed no interest in acquiring EHRs.[8] While respondents from small practices more often reported no interest in acquiring this technology according to the 2005 survey, the number of respondents among small practices were too small to detect statistical significance in 2007.

Figure 5: 2005 vs. 2007 Projected Adoption Timeline by Non-EHR Users



Note: 27.8% (2005) and 18.5% (2007) of non-EHR users reported no interest in obtaining EHR systems; 6.2% (2005) and <1% (2007) did not answer survey question.

DISCUSSION

The *Office Survey* estimates EHR adoption in Iowa physician offices at 25.0%, up from 18.3% estimated from the 2005 survey findings.[8] The 2007 survey rate is in alignment with the national rate of 24.0% for physicians in ambulatory settings, according to the "Health Information Technology in the United States: The Information Base for Progress" report.[6] The *System Survey* findings also support the idea that EHR adoption is occurring in Iowa, albeit along a gradual continuum of stages.

Assuming all non-EHR users projecting adoption within two years actually adhere to their timeline, the adoption rate would theoretically reach 63.9% by 2009. Analysis of the 2005 survey respondents' projections indicates barriers clearly challenge intended EHR adoption and implementation. The 2005 projections reported by non-EHR users suggested the adoption rate would reach 47.9% by 2007.[8]

The interest level and timelines projected for adoption among Iowa physician offices not currently using an EHR system are promising on one hand, yet the challenges associated with implementation often prohibit timely adoption of EHRs. Regardless of perceived versus actual timeline, the survey data appear to demonstrate the intent of Iowa physician offices to pursue EHR adoption.

Financial constraints continue to be a substantial barrier in Iowa. Interestingly, the workflow issues identified as most problematic could likely be addressed by HIT. Despite barriers and workflow issues, knowledge of benefits—realized or perceived—associated with EHR systems are recognized. Enhanced operational efficiencies appear to be recognized in conjunction with health care quality and patient safety.

While continued progress in EHR adoption is desirable, the relatively high level of involvement of physician champions in the EHR selection process is encouraging. A physician champion is an essential component to overcoming adoption barriers and achieving successful implementation. Enhanced involvement by clinical staff is also crucial to implementation; therefore, building value for this group—most affected by workflow issues—is imperative.

Besides EHR systems, registries were the only electronic function significantly more prevalent in 2007 than 2005. Relative to an EHR system, registries are simple and cost-effective to implement. Registries are a means to monitor clinical outcomes and improve quality of care without the financial investment associated with EHRs. Registry products are not only useful, they serve as a viable means for care management in the absence of an EHR system and help fulfill data reporting capabilities frequently required of quality of care programs offering financial incentives.

It was not surprising that survey responses from small physician offices composed the largest proportion of data collected because of the rural nature of the state. Although not generalizable to all physician offices in Iowa, gaps in adoption rates existed among survey respondents according to practice size. Large practices reported having EHRs implemented more often than medium or small practices. National EHR adoption rates also reflect variation according to practice size.[4,9]

Gaps in adoption rate may be explained by factors such as larger practices' greater financial and administrative resources, scale economies—the ability to spread acquisition and implementation costs among more physicians—and more active physician leadership promoting HIT and quality improvement.[9] Large practices are also more likely to be affiliated with a health system or network and access the HIT resources, EHR implementation support and financial assistance from this level.

Seemingly, the 2007 *Office Survey* data showed progress in EHR adoption rates among small physician offices in Iowa. It is unknown if the results reported by survey respondents are generalizable and representative of all small offices in the state. Factors that play a role in small physician offices' overcoming EHR adoption challenges can only be speculated. For example, some may be affiliated with a large clinic network/health system and have access to essential resources. Grants specifically designed to assist rural providers may facilitate adoption and implementation of EHR systems.

Recent changes to Stark exemptions and federal anti-kickback safe harbor laws may impact EHR adoption rates among small offices. Donations of information technology and supporting services by hospitals to physicians are not considered kickbacks and will not jeopardize not-for-profit status. Relaxation of the regulations and the IRS ruling could result in the acceleration of IT donations to Iowa physician offices in the future.

Limitations

Limitations related to both the 2007 survey methodology and results exist.

The primary yet anticipated limitation was the voluntary nature of the survey process elicited a less than optimal response rate. Survey participants self-selected from a census sample, and the database used for the sampling frame may not represent the entire target population of all physician offices in Iowa. In addition, caution was required when making comparisons between 2005 and 2007 *Office Survey* data because of general methodological enhancements and the fact that the same physician offices did not necessarily participate in both surveys.

Names and e-mail addresses for specific contact persons were not available for all physician offices. As a result, potential *Office Survey* respondents were targeted using various means and frequencies of marketing. While this was necessitated by resource limitations, it presents a potential response bias.

All survey data were self-reported and not subject to a validation process. Questions were answered according to the interpretation and knowledge of the respondent. Critical information likely needs to be elicited from more than one respondent within a physician office or clinic system/network; however, the initial respondent targeted rarely consulted with other colleagues.

Furthermore, survey administrators relied on *Office Survey* respondents to provide information used for stratifying data by practice type and size. Since the actual proportion of types and sizes of physician offices in Iowa was unknown, power calculations could not be performed to determine if responses within the stratifications were representative of the sampling frame.

The survey was not designed to evaluate features associated with full or partial EHR use nor did it assess the degree of interoperability; therefore, it is doubtful the estimated adoption rate reflects fully operational EHR systems in Iowa physician offices meeting any minimal criteria. For example, data from the 2005 National Ambulatory Medical Care Survey indicated 23.9% of physicians use full or partial EHRs in their office-based practice. This rate dropped to 9.3% when assessing physicians who had features deemed minimally necessary for a fully operational EHR system.[10]

In general, the online survey design prohibited integration of logic to eliminate respondents' skipping applicable and/or answering not applicable questions. This resulted in an incomplete data set for analysis of EHR and non-EHR users. Furthermore, classifying physician offices as EHR or non-EHR users was dependent on the data collected regarding HIT functions or systems already in place at the practice site. While a definition of EHR system was provided for the purpose of the survey, respondents' interpretation of having an EHR system "in place" was variable.

EHR adoption is not one measurable event that occurs at a defined moment in time. The continuum of EHR adoption consists of incremental stages related to acquisition, installation and use.[6] This continuum presents logistical challenges from a survey administration standpoint. For instance, survey questions related to acquisition may be appropriate for a clinic manager, but those at the point of care may be better suited to reliably answer questions about the degree of EHR use. It is also possible that some respondents in the earliest stage of acquisition did not perceive themselves as EHR users and answered respective questions accordingly. For the purpose of the 2007 survey, the adoption rate was calculated from data encompassing all stages along the continuum.

Recommendations

As more is discovered about EHR adoption, more is learned about the best approach for related data collection. Given policymakers' interest in accelerating the diffusion of EHRs in achieving widespread and uniform capability and use, it is increasingly important to gauge the status of adoption reliably.[4] Surveys establish an important baseline for assessing progress toward the adoption of HIT and EHRs; therefore, continuation of the Iowa HIT Initiative's survey process is recommended but with enhanced survey sophistication.

The Iowa HIT Initiative recommends researching HIT surveys conducted in other states and nationally to explore best practices. Ongoing national surveys such as the National Ambulatory Medical Care Survey and Medical Group Management Association survey contain useful items on EHR adoption. Recommendations found in the "Health Information Technology in the United States: The Information Base for Progress" report and future companion reports will drive standardization. For example, assessing the adoption of EHRs could be improved through developing a standardized, widely accepted definition of an EHR and through using generally accepted survey methodologies in collecting data on EHR adoption.[1] It would be prudent to heed these recommendations whenever possible and modify the survey methodology to unify local and national approaches to the measurement of EHR adoption.

EHR adoption occurs along a continuum often spanning several months to even years; therefore, it may be most efficient and effective to conduct follow-up surveys at an interval of no less than two years until a tipping point is evident. Assigning permanent survey identification numbers to participating physician offices, sampled from a complete sampling frame, would facilitate future trending of survey data and adherence to projected EHR adoption rates. In general, opportunities to increase the survey response rate should be explored.

Ultimately, the Iowa HIT Initiative recommends proactively sharing the survey data to benefit other statewide initiatives potentially impacted by EHR adoption in physician offices. For example, the findings could prove useful for initiatives exploring: (1) privacy and security of health information exchange (i.e., Iowa Health Information Security and Privacy Collaboration Project); (2) medical records interoperability (i.e., Iowa Electronic Medical Records Task Force); (3) Medicaid program EHR implementation and electronic information sharing (i.e., Iowa Medicaid Electronic Records System); and (4) accelerated HIT adoption and optimal use of EHRs in the outpatient setting (i.e., Doctor's Office Quality – Information Technology Initiative).

Engaging stakeholders and the provider community regarding EHR implementation in Iowa is paramount to fostering a culture of innovation and potentially transforming the quality, safety and value of health care in the outpatient setting.

CONCLUSIONS

The Iowa HIT Initiative's 2007 survey data show progress toward statewide HIT adoption by physician offices in Iowa; however, relatively slow rates of EHR adoption in Iowa and across the nation will challenge the President's goal of a national EHR system by 2014.

The availability of state-specific adoption data means key, local stakeholders have a valuable foundation on which to build. This knowledge—combined with advocacy and support—can help create the infrastructure necessary to facilitate more widespread EHR adoption among physician offices in Iowa.

Given that EHR adoption is an integral component of quality measurement, performance-related payments and population health assessments, understanding the adoption curve for HIT cannot be optional; it must be viewed as essential for guiding policies that address barriers and influence more widespread adoption.[6] Having a high quality survey protocol, with consistency at both the federal and state level, will be critical for evaluating progress and determining which initiatives effectively impact EHR adoption and health care across the nation and in Iowa.

ACKNOWLEDGEMENTS

On behalf of the Iowa HIT Initiative Steering Committee, the Iowa Foundation for Medical Care and Iowa Medical Society would like to acknowledge project staff for their dedication and effort throughout the 2007 survey administration process. Core team members from IFMC included: Amie DeForest, Kim Downs, Tim Gutshall, MD, Lori Hilgerson, Abhinesh Kumar, Lisa Naert and from IMS, Ed Whitver.

A special thanks to countless others at IFMC who contributed to survey distribution tasks, data collection activities and editorial assistance in reporting survey findings.

The Steering Committee members are especially grateful for the survey respondents' willingness to participate in the 2007 survey process and, by doing so, help support the Iowa HIT Initiative's mission to advance the use of HIT to improve the quality, safety and value of health care in Iowa.

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APPENDIX A

Exit this survey >>

2007 Physician Office Health Information Technology Survey

All information in this survey will be kept strictly confidential. All submitted data and related material that identify a specific organization or individual will be protected and will not be published or released without written permission.

WARNING: Selecting "Exit this survey" will close the survey instrument and responses WILL NOT BE SAVED. To save and submit responses, you must answer all applicable questions AND select "Done" at the conclusion of the survey.

*** Survey ID:**

Your clinic's survey ID was assigned in the introductory letter/email with the survey link.

*** Clinic Information**

Clinic Name:
Street Address/Suite:
City:
Zip Code:

*** Respondent Information**

Your Name:
Title:
E-mail:
Phone:

*** Consulted with other colleagues to facilitate completion of this survey:**

Yes No

SECTION 1 - CLINIC PROFILE

*** 1. What are the specialties and sub-specialties at this practice site? *(check all that apply)***

- Family Practice
- Internal Medicine
- Other Medicine Subsp.

- [ ] Orthopedics
- [ ] Pediatrics
- [ ] Other Surgery Subsp.
- [ ] OBGYN
- [ ] Surgery
- [ ] Neurology
- [ ] Ophthalmology
- [ ] ENT
- [ ] Psychiatry
- [ ] Other

*** 2. How many providers and staff are at this practice location?** ***(include all full-time and part-time staff)***

- [ ] Physicians (MD/DO)
- [ ] Mid-level Providers (NP/PA)
- [ ] Clinical Support Staff (RN/LPN)
- [ ] Administrative/Office Staff

*** 3. Does this practice participate in any pay-for-performance initiatives or other alternative reimbursement programs that provide different levels of payment based upon predefined criteria?**

- ◯ Yes
- ◯ No
- ◯ Don't know

-> If question #3 is no or don't know, skip question #3a, and go to question #4. <-

3a. If yes, is there a financial incentive for implementing and/or using Health IT?

- ◯ Yes
- ◯ No
- ◯ Don't Know

*** 4. Please check the workflow issues that cause the <u>greatest problems or challenges</u> in this practice:** ***(check all that apply)***

- [ ] Medical records unavailable when needed
- [ ] Documenting patient encounter - clinical
- [ ] Medical records legibility
- [ ] Patient scheduling
- [ ] Phone and fax processing
- [ ] Patient wait times
- [ ] Inefficient use of resources (e.g., staff, exam rooms, etc.)
- [ ] Test results (e.g., labs, X-ray) tracking & follow-up
- [ ] Patient no shows
- [ ] Patient satisfaction
- [ ] Billing and coding

- [ ] Timely referrals
- [ ] Transcription
- [ ] Writing prescriptions (e.g., returned prescriptions, refills, interactions, cross checks, etc.)
- [ ] Other

SECTION 2 - PATIENT POPULATION MANAGEMENT

*** 5. Does anyone in this practice currently create reports or use a registry/patient tracking system to manage patients with similar conditions (e.g., diabetes, cardiac, etc.)?**

- ( ) Yes
- ( ) No

-> If question #5 is no, skip question #5a, and go to question #6.<-

5a. If yes, how is the information used? *(check all that apply)*

- [ ] Monitor status of patient populations
- [ ] Document status for individual patients
- [ ] Identify patient follow-up opportunities

*** 6. How does this practice track patients on anticoagulation therapy? *(check all that apply)***

- [ ] Paper flow sheet in the chart
- [ ] Log book/tickler file
- [ ] Patient call in
- [ ] Electronic registry/patient tracking system
- [ ] Electronic Health Record (EHR)
- [ ] Do not track
- [ ] Not applicable

*** 7. How does this practice know if diabetes patients have had a Hgb A1C in the recommended time interval? *(check all that apply)***

- [ ] Paper flow sheet in the chart
- [ ] Log book/tickler file
- [ ] Patient call in
- [ ] Electronic registry/patient tracking system
- [ ] Electronic Health Record (EHR)
- [ ] Do not track
- [ ] Not applicable

*** 8. How does this practice identify patients needing immunizations? *(check all that apply)***

- [ ] Paper flow sheet in the chart
- [ ] Log book/tickler file
- [ ] Patient call in
- [ ] Electronic registry/patient tracking system
- [ ] Electronic Health Record (EHR)
- [ ] Do not track
- [ ] Not applicable

*** 9. How does this practice track patients for preventive care? *(check all that apply)***

- [ ] Paper flow sheet in the chart
- [ ] Log book/tickler file
- [ ] Patient call in
- [ ] Electronic registry/patient tracking system
- [ ] Electronic Health Record (EHR)
- [ ] Do not track
- [ ] Not applicable

SECTION 3 - INFORMATION TECHNOLOGY READINESS ASSESSMENT

*** 10. Does this practice have an Internet connection?**

- ◯ Yes
- ◯ No

-> If question #10 is no, skip question #10a, and go to question #11. <-

10a. If yes, what type of Internet connection does this practice utilize? *(check one option)*

- ◯ Dial up connection (e.g., 56K modem, etc.)
- ◯ High-speed connection (e.g., cable modem, DSL, satellite)
- ◯ Don't know

->Use the following definitions for your responses to questions #11 and #12.<-

EHR system **= The electronic system that has the ability to create and maintain problem, medication and allergy lists and that can be used to document patient encounters and write orders and prescriptions.**

Electronic disease registries/patient tracking system **= Stand alone application designed to track patients with specific conditions. (Excludes full EHR system.)**

Electronic prescribing system **= Stand alone application or stand alone EHR module used to write and print, fax or electronically send prescriptions. (Excludes full EHR system.)**

Patient portal **= Patients have the ability to use a Web site to schedule appointments, request medication refills, review test results or portions of their chart and communicate with their provider.**

*** 11. What electronic health information systems and/or functions does this practice already have in place? *(check all that apply)***

- Electronic Health Record (EHR) system
- Electronic billing system
- Electronic laboratory system
- Patient portal
- Electronic disease registries/patient tracking system
- Electronic scheduling system
- Electronic prescribing system
- Telehealth system
- Other
- None

*** 12. Of those electronic health information systems and/or functions not currently implemented, what electronic health information systems is this practice interested in implementing in the future? *(check all that apply)***

- Electronic Health Record (EHR) system
- Electronic billing system
- Electronic laboratory system
- Patient portal
- Electronic disease registries/patient tracking system
- Electronic scheduling system
- Electronic prescribing system
- Telehealth system
- Other
- None

-> -> -> Current EHR users, please skip to question #16. <- <- <-

13. What does this practice perceive as the value of Electronic Health Records? *(check all that apply)*

- Access to current patient data and ability to complete records from remote location
- Accessibility of data regardless of setting or provider (interoperability)
- Office process efficiency
- Increased communication within the office
- Increased communication with the patient
- Improved quality of care and patient safety
- Disease management/Ability to monitor and improve patient/population clinical outcomes
- Cost reduction and/or increased revenue
- Other
- No perceived value/Benefits don't justify the costs

14. If this practice has not implemented an Electronic Health Record system, rate each of the following potential barriers for this practice. *(check the appropriate number)*

	5=Extreme barrier	4=Significant barrier	3=Moderate barrier	2=Marginal barrier	1=No barrier
Financial constraints	○	○	○	○	○
Unable to secure all partners'/clinicians' commitment to use EHR	○	○	○	○	○
Vendor support is inadequate for technological needs of the practice	○	○	○	○	○
Initial data entry is too labor intensive	○	○	○	○	○
Lack of clinical data standards	○	○	○	○	○
Vendor stability and viability	○	○	○	○	○
Software requires extensive customization to fit into the practice	○	○	○	○	○
Time required to implement and train staff	○	○	○	○	○
Difficult to select a system	○	○	○	○	○
Confidentiality/privacy/security concerns	○	○	○	○	○
Office disruption during implementation (e.g., fewer patients, lost revenue)	○	○	○	○	○
Current practice management software vendor does not offer an EHR package	○	○	○	○	○

15. If this practice does not have an Electronic Health Record system, when do the providers and staff plan to start implementing it? *(check one option)*

- ○ 1 - 6 months
- ○ 6 - 12 months
- ○ 1 - 2 years
- ○ >2 years
- ○ Not interested in obtaining EHR system

-> -> -> Non-EHR users, please skip questions #16-25 and go to question #26. <- <- <-

16. Who was involved in the selection/decision process to purchase an Electronic Health Record system? *(check all that apply)*

- ☐ Physician champion
- ☐ Office manager
- ☐ Clinical staff

- [ ] Administrative staff
- [ ] Health System management
- [ ] Other

17. What was the approximate per provider purchase and implementation cost for the Electronic Health Record system?

- Less than $5,000 per physician
- $5,000 - $9,999 per physician
- $10,000 - $14,999 per physician
- $15,000 - $19,999 per physician
- $20,000 - $24,999 per physician
- $25,000 - $30,000 per physician
- Greater than $30,000 per physician

18. What stage has this practice reached with Electronic Health Record adoption? *(check one option)*

- Purchased, have not started to implement yet
- Installation and training in progress
- EHR implemented and used for less than one year
- EHR implemented and used for greater than one year

19. Is this practice satisfied with the Electronic Health Record system, overall?

- Yes, very satisfied
- Yes, somewhat satisfied
- No, not satisfied
- Unknown/product not yet in use

20. Has this practice realized a positive financial return on investment?

- Yes
- Breaking even
- No
- Don't know

21. If this practice has implemented an Electronic Health Record system, rank each of the following EHR features on its benefits to this practice. *(check the appropriate number)*

	5=Extremely beneficial	4=Very beneficial	3=Somewhat beneficial	2=Marginal benefit	1=No benefit
Reduce transcription costs					
Improve access to medical record information					
Reduce administrative costs associated with practice					
Provide more services to					

patients per visit					
Improve charge capture					
Reduce clinical and medication errors					
Improve clinical decision-making					
Improve workflow					
Improve patient communications					
Improve quality of patient care					

22. Please list the Electronic Health Record system this practice currently uses:

Vendor Name:

Product Name:

23. Is your Electronic Health Record system certified by the Certification Commission for Healthcare Information Technology?

- Yes
- No
- Don't know

24. Is your Electronic Health Record system E-prescribing capable?

E-prescribing **= The ability to electronically send prescriptions directly to the Pharmacy electronic system using services such as SureScripts or similar. (Excludes prescription faxing or printing.)**

- Yes
- No
- Don't know

-> If question #24 is no or don't know, skip question #24a, and go to question #25. <-

24a. If yes, do you currently use E-prescribing with pharmacies in your area?

- Yes
- No

25. Do you exchange electronic patient information between your Electronic Health Record system and other EHR systems including Hospital/Urgent Care/Nursing Home EHRs?

- Yes, primarily laboratory and other test results
- Yes, beyond laboratory and other test results (e.g., discharge summaries, problem lists, medications, allergies, etc.)
- Yes, we obtain patient information directly by accessing the other EHR system (e.g., through Web portal or similar method) instead of interfacing with it
- No

*** 26. I would like more information about health information technology.**

- Yes
- No

NOTE: Selecting "Done" at the conclusion of the survey WILL save and submit your survey responses. You will then be redirected to the Iowa HIT Initiative Web site.

It is recommended you print a copy of your completed survey PRIOR to selecting "Done." To print, select "Print" from the File menu. Please retain the printed copy for your records. Your clinic's survey will not be accessible online upon conclusion of the Iowa HIT Initiative's data collection.

Thank you!

Your willingness to assist the Iowa HIT Initiative in this important survey is appreciated. An aggregated summary of the findings will be shared with the respondent of this survey.

This material was prepared by the Iowa Foundation for Medical Care, the Medicare Quality Improvement Organization for Iowa, under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The contents presented do not necessarily reflect CMS Policy. 8SoW-IA-DOQIT-12/06-043

<< Prev Done >>

APPENDIX B

2007 Physician Office Health Information Technology Survey

All information in this survey will be kept strictly confidential. All submitted data and related material that identify a specific organization or individual will be protected and will not be published or released without written permission.

Clinic Name: _____ **Survey ID:** _____

Street Address: _____ **Suite:** _____

City: _____ **Zip Code:** _____

Your Name: _____ **Title:** _____

E-mail: _____ **Phone:** _____

Consulted with other colleagues to facilitate completion of this survey: ☐ Yes ☐ No

Section – 1 Clinic Profile

1. What are the specialties and sub-specialties at this practice site? (check all that apply)

☐ Family Practice ☐ Orthopedics ☐ OBGYN ☐ Ophthalmology
☐ Internal Medicine ☐ Pediatrics ☐ Surgery ☐ ENT
☐ Other Medicine Subsp ☐ Other Surgery Subsp ☐ Neurology ☐ Psychiatry
☐ Other

2. How many providers and staff are at this practice location? (include all full-time and part-time staff)

Physicians (MD/DO): _____ Clinical Support Staff (RN/LPN): _____
Mid-level Providers (NP/PA): _____ Administrative/Office Staff: _____

3. Does this practice participate in any pay-for-performance initiatives or other alternative reimbursement programs that provide different levels of payment based upon predefined criteria?

☐ Yes ☐ No ☐ Don't know

3a. If yes, is there a financial incentive for implementing and/or using Health IT?
If no or don't know, skip question #3a, and go to question #4.

☐ Yes ☐ No ☐ Don't know

4. Please check the workflow issues that cause the **greatest problems or challenges** in this practice (check all that apply)

☐ Medical records unavailable when needed
☐ Documenting patient encounter – clinical
☐ Medical records legibility
☐ Patient scheduling
☐ Phone and fax processing
☐ Patient wait times
☐ Inefficient use of resources (e.g., staff, exam rooms, etc.)
☐ Other
☐ Test results (e.g., labs, X-ray) tracking & follow-up
☐ Patient no shows
☐ Patient satisfaction
☐ Billing and coding
☐ Timely referrals
☐ Transcription
☐ Writing prescriptions (e.g., returned prescriptions, refills, interactions, cross checks, etc.)

Page 1 of 6

Section – 2 Patient Population Management

5. Does anyone in this practice currently create reports or use a registry/patient tracking system to manage patients with similar conditions (e.g., diabetes, cardiac, etc.)? ☐ Yes ☐ No

   5a. If yes, how is the information used? (check all that apply)
   If no, skip question #5a, and go to question #6.

   - ☐ Monitor status of patient populations
   - ☐ Document status for individual patients
   - ☐ Identify patient follow-up opportunities

6. How does this practice track patients on anticoagulation therapy? (check all that apply)

   - ☐ Paper flow sheet in the chart
   - ☐ Log book/tickler file
   - ☐ Patient call in
   - ☐ Not applicable
   - ☐ Electronic registry/patient tracking system
   - ☐ Electronic Health Record (EHR)
   - ☐ Do not track

7. How does this practice know if diabetes patients have had a Hgb A1C in the recommended time interval? (check all that apply)

   - ☐ Paper flow sheet in the chart
   - ☐ Log book/tickler file
   - ☐ Patient call in
   - ☐ Not applicable
   - ☐ Electronic registry/patient tracking system
   - ☐ Electronic Health Record (EHR)
   - ☐ Do not track

8. How does this practice identify patients needing immunizations? (check all that apply)

   - ☐ Paper flow sheet in the chart
   - ☐ Log book/tickler file
   - ☐ Patient call in
   - ☐ Not applicable
   - ☐ Electronic registry/patient tracking system
   - ☐ Electronic Health Record (EHR)
   - ☐ Do not track

9. How does this practice track patients for preventive care? (check all that apply)

   - ☐ Paper flow sheet in the chart
   - ☐ Log book/tickler file
   - ☐ Patient call in
   - ☐ Not applicable
   - ☐ Electronic registry/patient tracking system
   - ☐ Electronic Health Record (EHR)
   - ☐ Do not track

Section – 3 Information Technology Readiness Assessment

10. Does this practice have an Internet connection? ☐ Yes ☐ No

    10a. If yes, what type of Internet connection does this practice utilize? (check one option)
    If no, skip question #10a, and go to question #11.

    - ☐ Dial up connection (e.g., 56K modem, etc.)
    - ☐ High-speed connection (e.g., cable modem, DSL, satellite)
    - ☐ Don't know

11. What electronic health information systems and/or functions does this practice already have in place? (use the following definitions for your response – check all that apply)

EHR system = The electronic system that has the ability to create and maintain problem, medication and allergy lists and that can be used to document patient encounters and write orders and prescriptions.

Electronic disease registries/patient tracking system = Stand alone application designed to track patients with specific conditions. (Excludes full EHR system.)

Electronic prescribing system = Stand alone application or stand alone EHR module used to write and print, fax or electronically send prescriptions. (Excludes full EHR system.)

Patient portal = Patients have the ability to use a Web site to schedule appointments, request medication refills, review test results or portions of their chart and communicate with their provider.

- ☐ Electronic Health Record (EHR) system
- ☐ Electronic billing system
- ☐ Electronic laboratory system
- ☐ Patient portal
- ☐ Other
- ☐ Electronic disease registries/patient tracking system
- ☐ Electronic scheduling system
- ☐ Electronic prescribing system
- ☐ Telehealth system
- ☐ None

12. Of those electronic health information systems and/or functions not currently implemented, what electronic health information systems is this practice interested in implementing in the future? (use the following definitions for your response – check all that apply)

EHR system = The electronic system that has the ability to create and maintain problem, medication and allergy lists and that can be used to document patient encounters and write orders and prescriptions.

Electronic disease registries/patient tracking system = Stand alone application designed to track patients with specific conditions. (Excludes full EHR system.)

Electronic prescribing system = Stand alone application or stand alone EHR module used to write and print, fax or electronically send prescriptions. (Excludes full EHR system.)

Patient portal = Patients have the ability to use a Web site to schedule appointments, request medication refills, review test results or portions of their chart and communicate with their provider.

- ☐ Electronic Health Record (EHR) system
- ☐ Electronic billing system
- ☐ Electronic laboratory system
- ☐ Patient portal
- ☐ Other
- ☐ Electronic disease registries/patient tracking system
- ☐ Electronic scheduling system
- ☐ Electronic prescribing system
- ☐ Telehealth system
- ☐ None

→ → → Current EHR users, please skip to question #16. ← ← ←

13. What does this practice perceive as the value of Electronic Health Records? (check all that apply)

- ☐ Access to current patient data and ability to complete records from remote location
- ☐ Accessibility of data regardless of setting or provider (interoperability)
- ☐ Office process efficiency
- ☐ Increased communication within the office
- ☐ Increased communication with the patient
- ☐ Improved quality of care and patient safety
- ☐ Disease management /Ability to monitor and improve patient/population clinical outcomes
- ☐ Cost reduction and/or increased revenue
- ☐ Other
- ☐ No perceived value/Benefits don't justify the costs

14. If this practice has not implemented an Electronic Health Record system, rate each of the following potential barriers for this practice. Use the scale of:
5=extreme barrier; 4=significant barrier; 3=moderate barrier; 2=marginal barrier; 1=no barrier

(circle the appropriate number)

5	4	3	2	1	Financial constraints
5	4	3	2	1	Unable to secure all partners'/clinicians' commitment to use EHR
5	4	3	2	1	Vendor support is inadequate for technological needs of the practice
5	4	3	2	1	Initial data entry is too labor intensive
5	4	3	2	1	Lack of clinical data standards
5	4	3	2	1	Vendor stability and viability
5	4	3	2	1	Software requires extensive customization to fit into the practice
5	4	3	2	1	Time required to implement and train staff
5	4	3	2	1	Difficult to select a system
5	4	3	2	1	Confidentiality/privacy/security concerns
5	4	3	2	1	Office disruption during implementation (e.g., fewer patients, lost revenue)
5	4	3	2	1	Current practice management software vendor does not offer an EHR package

15. If this practice does not have an Electronic Health Record system, when do the providers and staff plan to start **implementing** it? (check one option)

☐ 1-6 months ☐ 6-12 months ☐ 1-2 years ☐ >2 years

☐ Not interested in obtaining EHR system

➔ ➔ ➔ Non-EHR users, please skip questions #16-25 and go to question #26. ← ← ←

16. Who was involved in the selection/decision process to purchase an Electronic Health Record system? (check all that apply)

☐ Physician champion
☐ Office manager
☐ Clinical staff
☐ Administrative staff
☐ Health System management
☐ Other

17. What was the approximate per provider purchase and implementation cost for the Electronic Health Record system?

☐ Less than $5,000 per physician
☐ $5,000 - $9,999 per physician
☐ $10,000 - $14,999 per physician
☐ $15,000 - $19,999 per physician
☐ $20,000 - $24,999 per physician
☐ $25,000 - $30,000 per physician
☐ Greater than $30,000 per physician

18. What stage has this practice reached with Electronic Health Record adoption? (check one option)

- ☐ Purchased, have not started to implement yet
- ☐ Installation and training in progress
- ☐ EHR implemented and used for less than one year
- ☐ EHR implemented and used for greater than one year

19. Is this practice satisfied with the Electronic Health Record system, overall?

- ☐ Yes, very satisfied
- ☐ Yes, somewhat satisfied
- ☐ No, not satisfied
- ☐ Unknown/product not yet in use

20. Has this practice realized a positive financial return on investment?

☐ Yes ☐ Breaking even ☐ No ☐ Don't know

21. If this practice has implemented an Electronic Health Record system, rank each of the following EHR features on its benefits to this practice. Use the scale of:
5=extremely beneficial; 4=very beneficial; 3=somewhat beneficial; 2=marginal benefit; 1=no benefit

(circle the appropriate number)

5	4	3	2	1	Reduce transcription costs
5	4	3	2	1	Improve access to medical record information
5	4	3	2	1	Reduce administrative costs associated with practice
5	4	3	2	1	Provide more services to patients per visit
5	4	3	2	1	Improve charge capture
5	4	3	2	1	Reduce clinical and medication errors
5	4	3	2	1	Improve clinical decision-making
5	4	3	2	1	Improve workflow
5	4	3	2	1	Improve patient communications
5	4	3	2	1	Improve quality of patient care

22. Please list the Electronic Health Record system this practice currently uses:

Vendor Name: _____

Product Name: _____

23. Is your Electronic Health Record system certified by the Certification Commission for Healthcare Information Technology?

- ☐ Yes
- ☐ No
- ☐ Don't know

24. Is your Electronic Health Record system E-prescribing capable?

E-prescribing = The ability to electronically send prescriptions directly to the Pharmacy electronic system using services such as SureScripts or similar. (Excludes prescription faxing or printing.)

- ☐ Yes
- ☐ No
- ☐ Don't know

24a. If yes, do you currently use E-prescribing with pharmacies in your area?
If no or don't know, skip question #24a, and go to question #25.

- ☐ Yes
- ☐ No

25. Do you exchange electronic patient information between your Electronic Health Record system and other EHR systems including Hospital/Urgent Care/Nursing Home EHRs?

- ☐ Yes, primarily laboratory and other test results
- ☐ Yes, beyond laboratory and other test results (e.g., discharge summaries, problem lists, medications, allergies, etc.)
- ☐ Yes, we obtain patient information directly by accessing the other EHR system (e.g., through Web portal or similar method) instead of interfacing with it
- ☐ No

26. I would like more information about health information technology. ☐ Yes ☐ No

Thank you!

Your willingness to assist the Iowa HIT Initiative in this important survey is appreciated.

An aggregated summary of the findings will be shared with the respondent of this survey.

This material was prepared by the Iowa Medical Society and the Iowa Foundation for Medical Care, the Medicare Quality Improvement Organization for Iowa, under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The contents presented do not necessarily reflect CMS policy.
8SoW-IA-DOQIT-12/06-043

APPENDIX C

Exit this survey >>

Clinic System Health Information Technology Survey

All information in this survey will be kept strictly confidential. All submitted data and related material that identify a specific organization or individual will be protected and will not be published or released without written permission.

WARNING: Selecting "Exit this survey" will close the survey instrument and responses WILL NOT BE SAVED. To save and submit responses, you must answer all applicable questions AND select "Done" at the conclusion of the survey.

*** Clinic System Information**

Clinic System Name:
Street Address/Suite:
City:
State:
Zip:

*** Respondent Information**

Your Name:
Title:
Email:
Phone:

*** Consulted with other colleagues to facilitate completion of this survey:**

Yes No

*** 1) How many practice sites are part of your clinic system? *(include all sites where your clinic system oversees the management of day-to-day operations)***

*** 1a. How many of the practice sites are located in Iowa?**

*** 2) How many providers (i.e., physicians, physician assistants & nurse practitioners) practice across all sites in your clinic system? *(include all full-time and part-time providers; count each provider only once regardless of the number of sites at which he/she practices)***

*** 2a. How many of these providers are affiliated with the practice sites located in Iowa?**

*** 3) What is the current EHR implementation status for practice sites in your clinic system? *(select one option)***

- EHR implementation complete at all practice sites
- EHR implementation complete at some, not all practice sites
- EHR vendor contract signed, no EHR implementation to date
- No EHR vendor contract signed to date

-> Only answer questions #3a & #3b if question #3 is "EHR implementation complete at some, not all practice sites" <-

3a. At how many practice sites is EHR implementation complete?

3b. When is the projected completion of EHR implementation at all practice sites? *(specify month &/or year, if known)*

*** 4) If your clinic system has an EHR vendor, please list. *(enter N/A if no EHR vendor)***

-> Only answer question #4a if question #4 is "N/A" <-

4a. If your clinic system does not have an EHR vendor, when is EHR implementation planned?

- 0 - 12 months
- 13 - 24 months
- > 24 months
- No plan for EHR implementation at this time

NOTE: Selecting "Done" at the conclusion of the survey WILL save and submit your survey responses. You will then be redirected to the Iowa HIT Initiative Web site.

It is recommended you print a copy of your completed survey PRIOR to selecting "Done." To print, select "Print" from the File menu. Please retain the printed copy for your records. Your clinic system's survey will not be accessible online upon conclusion of the Iowa HIT Initiative's data collection.

Thank you!

Your willingness to assist the Iowa HIT Initiative in this important survey is appreciated. An aggregated summary of the findings will be shared with the respondent of this survey.

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<< Prev **Done >>**